

IN THE CLAIMS

1. (Previously Presented) A device, comprising:
a sensor adapted to provide a signal responsive to temperature said sensor to provide said signal a preselected number of times; and
a refresh rate control unit operatively coupled with said sensor, said refresh rate control unit being adapted to adjust a refresh rate associated with at least a portion of said device in response to said temperature signal being based on the preselected number of times.
2. (Previously Presented) The device, as set forth in claim 1, wherein the refresh control unit is adapted to increase the refresh rate in response to detecting an increased temperature.
3. (Previously Presented) The device, as set forth in claim 1, wherein said refresh rate control unit further comprises:
a comparator coupled to receive the temperature responsive signal at a first input terminal and a reference signal at a second input terminal, said comparator being adapted to deliver a first signal in response to the temperature responsive signal being less than the reference signal and a second signal in response to the temperature responsive signal rising above the reference signal; and
an oscillator adapted to produce a refresh signal at a first preselected rate in response to receiving the first signal and at a second preselected rate in response to receiving the second signal.
4. (Previously Presented) The device, as set forth in claim 3, wherein the oscillator includes a counter and a logic circuit adapted to select a first bit of the counter to produce the refresh signal in response to receiving the first signal and select a second bit of the counter to produce the refresh signal in response to receiving the second signal.

5. (Previously Presented) The device, as set forth in claim 3, wherein the comparator is further adapted to deliver the first signal in response to the temperature responsive signal falling a preselected magnitude below the reference signal.
6. (Previously Presented) The device, as set forth in claim 3, wherein the comparator includes a hysteresis effect.
7. (Previously Presented) A device, comprising:
a sensor adapted to provide a signal responsive to temperature; and
a refresh rate control unit operatively coupled with said sensor, said refresh rate control unit being adapted to adjust a refresh rate associated with at least a portion of said device in response to said temperature signal;
a comparator coupled to receive the temperature responsive signal at a first input terminal and a reference signal at a second input terminal, said comparator being adapted to deliver a first signal in response to the temperature responsive signal being less than the reference signal and a second signal in response to the temperature responsive signal rising above the reference signal;
and
a digital filter coupled electrically intermediate the comparator and the oscillator.
8. (Previously Presented) The device, as set forth in claim 7, wherein the digital filter passes the second signal to the oscillator after the second signal persists for a preselected period of time.
9. (Previously Presented) The device, as set forth in claim 1, wherein the sensor is thermally coupled with the device.
10. (Previously Presented) The device, as set forth in claim 8, wherein the sensor is at least partially formed within a common substrate with the device.
11. (Previously Presented) The device, as set forth in claim 1, wherein the refresh rate control unit is further adapted to provide a first signal in response to the temperature signal being

within a first preselected range and a second signal in response to the temperature signal being within a second preselected range, said refresh rate control unit being further adapted to provide a refresh signal at a first preselected rate in response to receiving the first signal and at a second rate in response to receiving the second signal.

12. (Previously Presented) A device, comprising:

means for detecting a temperature of at least a portion of a memory device to provide an indication of the temperature said means capable of providing said indication a preselected number of times; and

means for adjusting a refresh rate associated with at least a portion of said memory device in response to the detected temperature being based on said indication of the temperature a preselected number of times.

13. (Previously Presented) A method, comprising:

detecting a temperature of at least a portion of a memory device to provide an indication of the temperature detecting said temperature to provide said indication comprising providing said indication a preselected number of times; and

adjusting a refresh rate associated with at least a portion of said memory device in response to the detected temperature being based on said indication of the temperature a preselected number of times.

14. (Previously Presented) The method, as set forth in claim 13, wherein adjusting the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises increasing the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature increasing.

15. (Previously Presented) The method, as set forth in claim 13, wherein adjusting a refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises comparing the temperature responsive signal with a reference signal and delivering a refresh signal at a first preselected rate in response to the

temperature responsive signal being less than the reference signal and at a second preselected rate in response to the temperature responsive signal rising above the reference signal.

16. (Previously Presented) The method, as set forth in claim 15, wherein delivering a refresh signal at a first preselected rate in response to the temperature responsive signal being less than the reference signal further comprises delivering the refresh signal at the first preselected rate in response to the temperature responsive signal falling a preselected magnitude below the reference signal.

17. (Previously Presented) The method, as set forth in claim 15, wherein comparing the temperature responsive signal with the reference signal and delivering the refresh signal at the first preselected rate in response to the temperature responsive signal being less than the reference signal and at a second preselected rate in response to the temperature responsive signal rising above the reference signal further comprises including a hysteresis effect to the comparing operation.

18. (Previously Presented) A method, comprising:
detecting a temperature of at least a portion of a memory device;
adjusting a refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature;
comparing the temperature responsive signal with a reference signal and delivering a refresh signal at a first preselected rate in response to the temperature responsive signal being less than the reference signal and at a second preselected rate in response to the temperature responsive signal rising above the reference signal; and
applying digital filtering to the comparing operation.

19. (Previously Presented) The method, as set forth in claim 18, wherein applying digital filtering to the comparing operation further comprises comparing the temperature responsive signal with the reference signal a preselected number of times and delivering a refresh signal at a first preselected rate in response to the temperature responsive signal being less than the reference signal each of the preselected number of times.

20. (Previously Presented) The method, as set forth in claim 8, further comprising forming a sensor for detecting the temperature at least partially within a common substrate with the memory device.

21. (Previously Presented) A method, as set forth in claim 13, wherein adjusting the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises providing a first signal in response to the temperature signal being within a first preselected range and a second signal in response to the temperature signal being within a second preselected range, and providing a refresh signal at a first preselected rate in response to receiving the first signal and at a second rate in response to receiving the second signal.

22. (Currently Amended) A system, comprising:

a processor;
memory; and

a memory controller operatively coupling the processor with the memory and being adapted to control refresh operations of the memory, the memory controller comprising:

a sensor adapted to provide a signal responsive to temperature of at least a portion of the memory said sensor to ~~provide~~ provide said signal a preselected number of times; and

a refresh rate control unit operatively coupled with said sensor, said refresh rate control unit being adapted to adjust a refresh rate associated with at least a portion of the memory in response to said temperature signal being based on the preselected number of times.

23. (Previously Presented) The device, as set forth in claim 1, wherein said temperature signal being based on the preselected number of times.

24. (Previously Presented) The device, as set forth in claim 1, wherein said temperature signal being substantially same for at least two consecutive sample periods.

25. (Previously Presented) The device, as set forth in claim 1, wherein said temperature signal being in a defined temperature range for the preselected number of times.

26. (Previously Presented) The method, as set forth in claim 13, wherein adjusting the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises adjusting the refresh rate based on said indication of the temperature being based on the preselected number of times.

27. (Previously Presented) The method, as set forth in claim 13, wherein adjusting the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises adjusting the refresh rate based on said indication of the temperature being substantially same for at least two consecutive sample periods.

28. (Previously Presented) The method, as set forth in claim 13, wherein adjusting the refresh rate associated with at least a portion of said memory device in response to the magnitude of the detected temperature further comprises adjusting the refresh rate based on said indication of the temperature being in a defined temperature range for the preselected number of times.